

FIG. 1

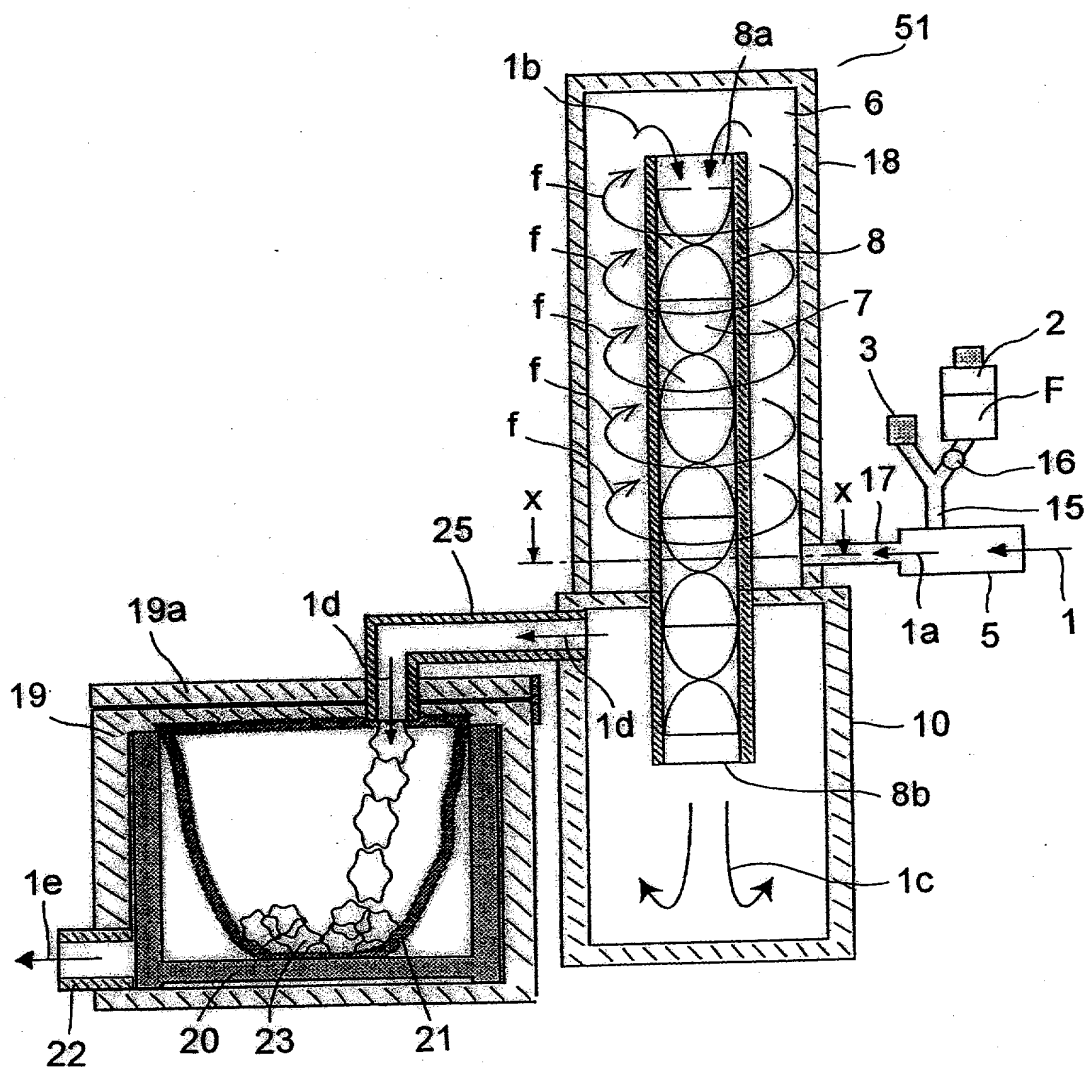


FIG. 2

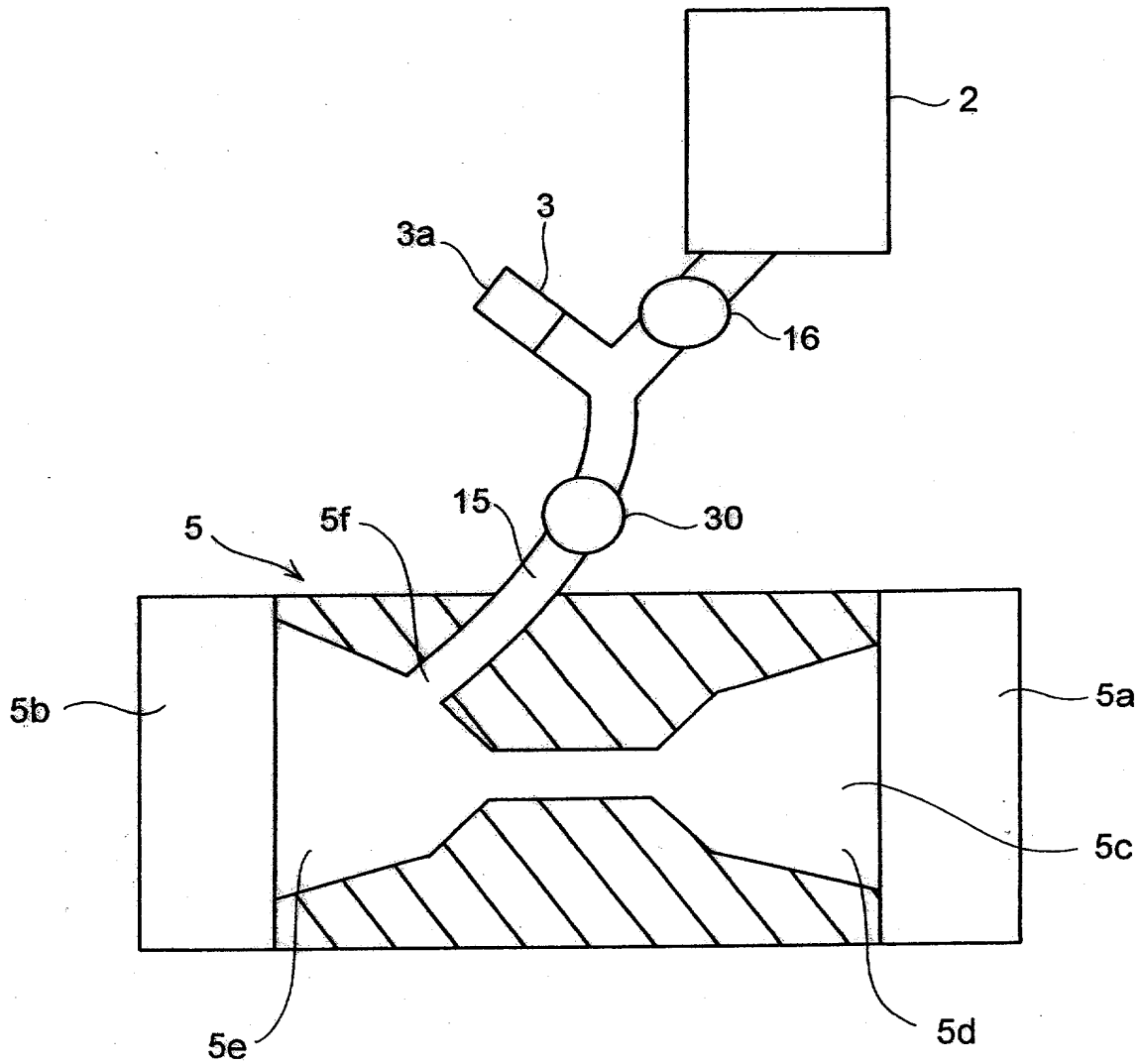


FIG. 3

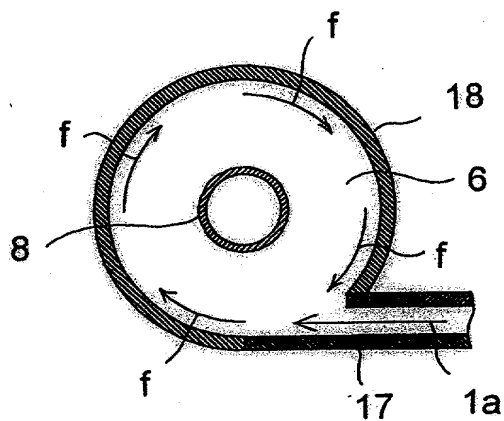
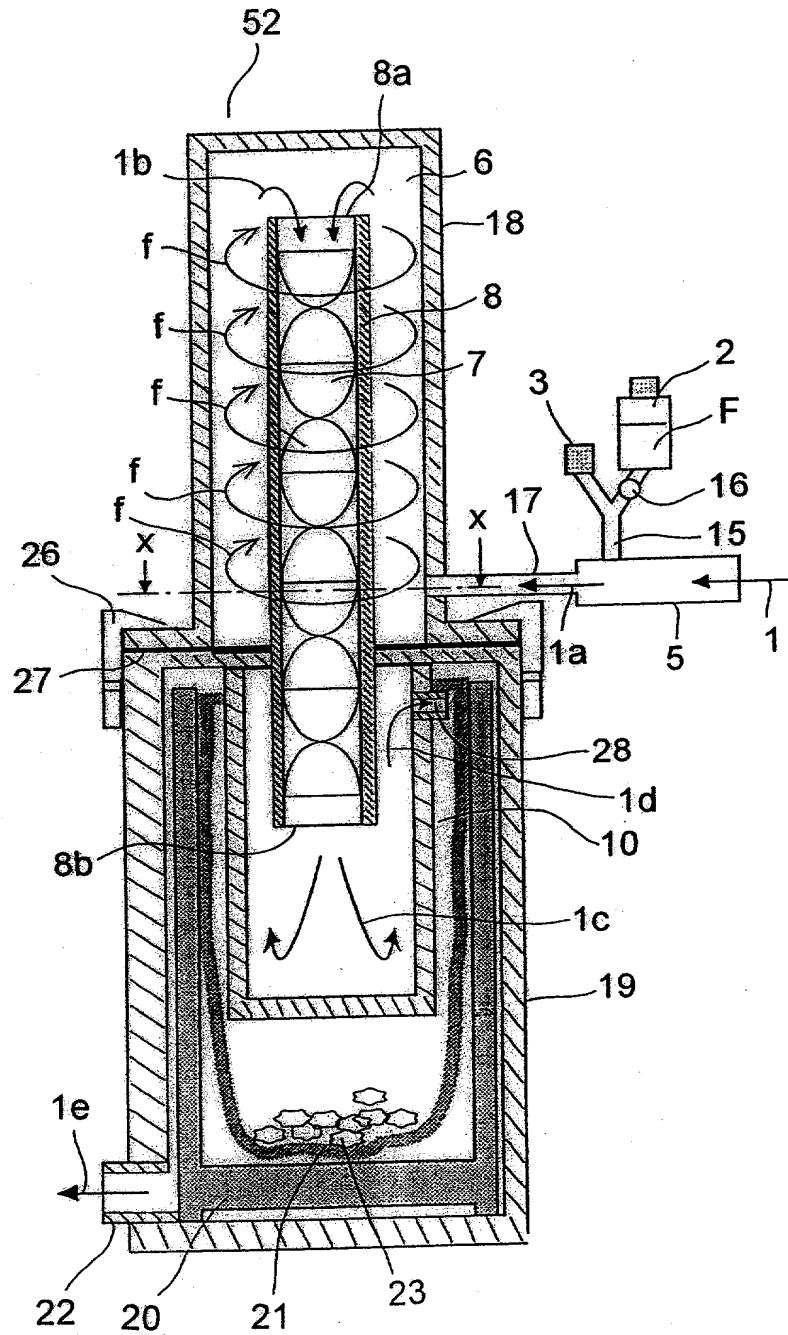


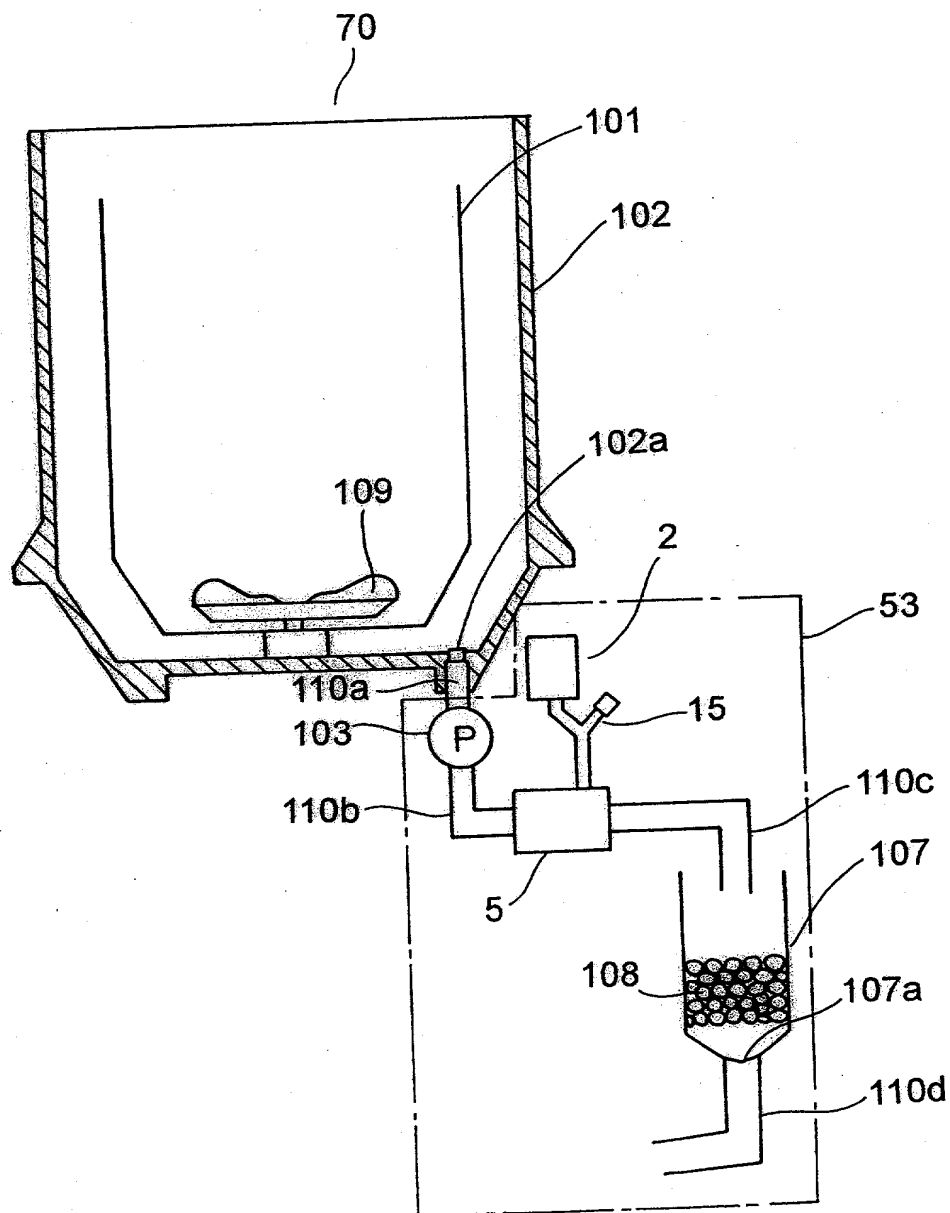
FIG. 4



THE UNIVERSITY OF CHICAGO

5/31

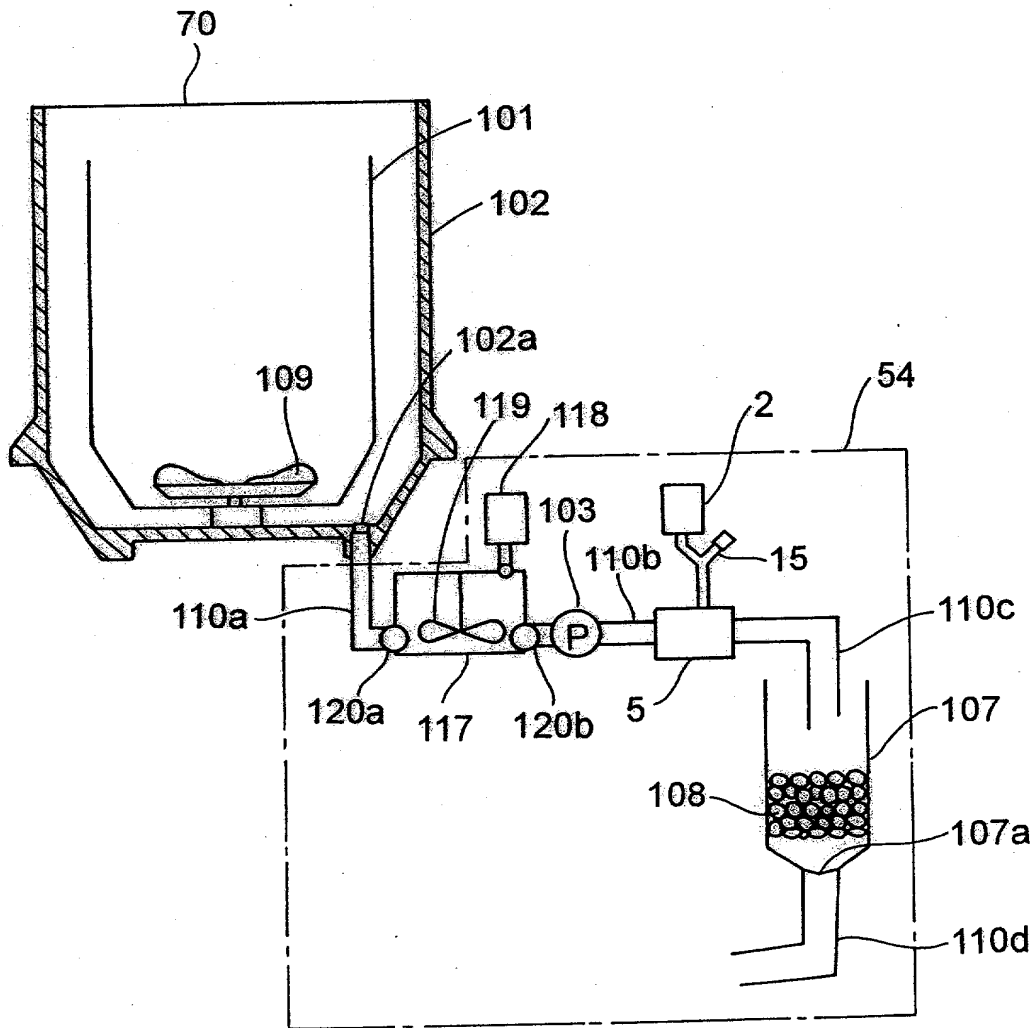
FIG. 5



10031084-01602

6/31

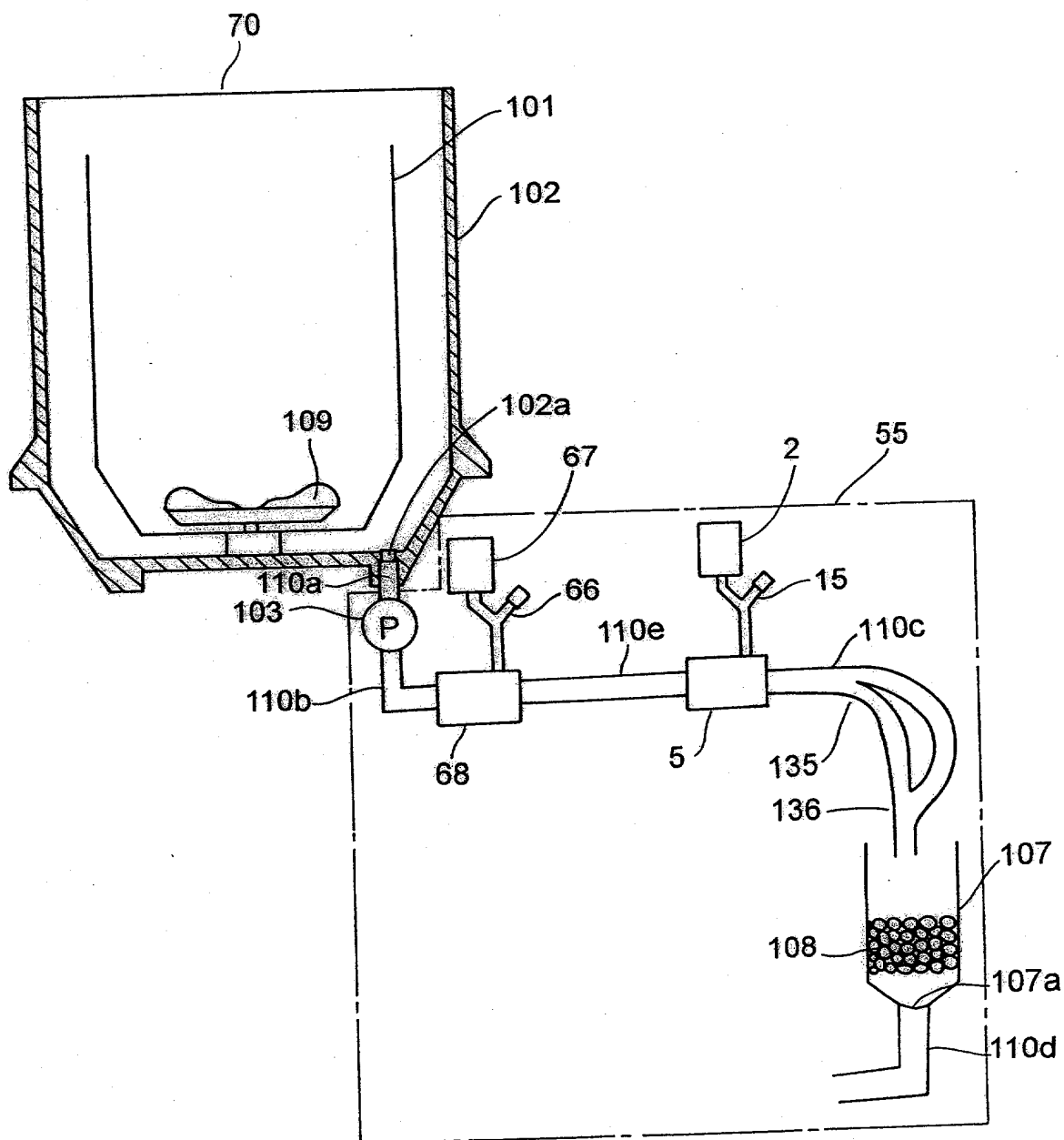
FIG. 6



209110-4801E001

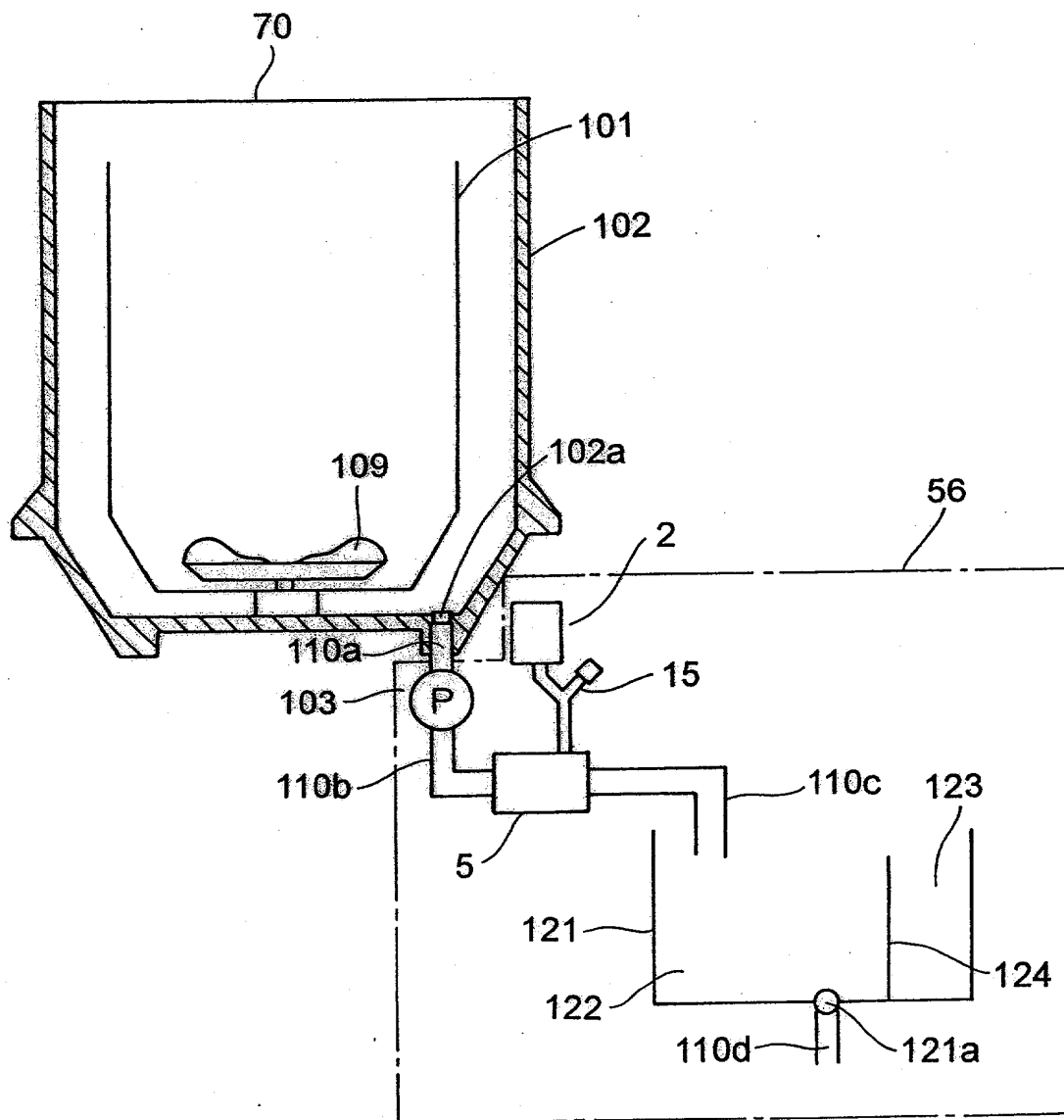
7/31

FIG. 7



8/31

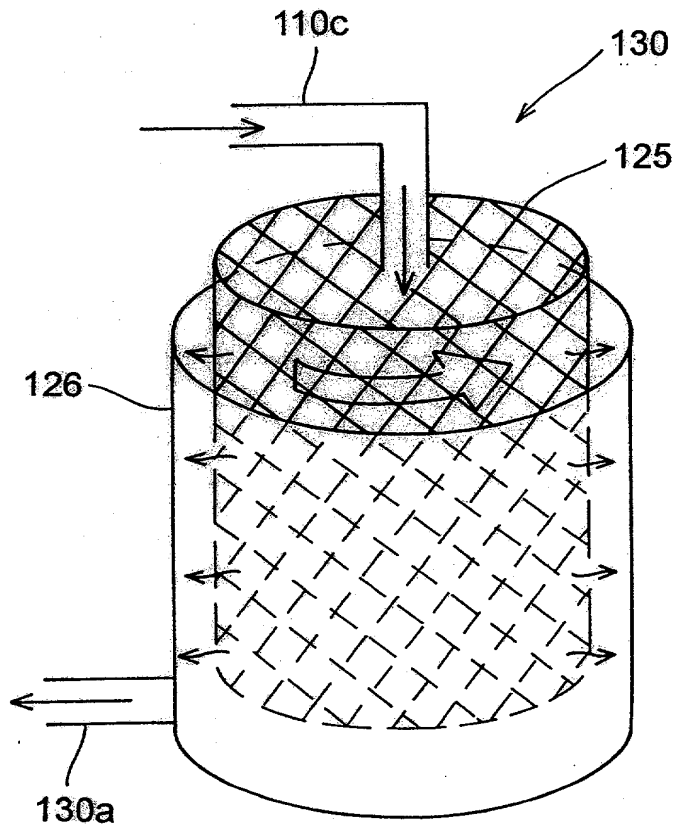
FIG. 8





9/31

FIG. 9



10/31

FIG. 10

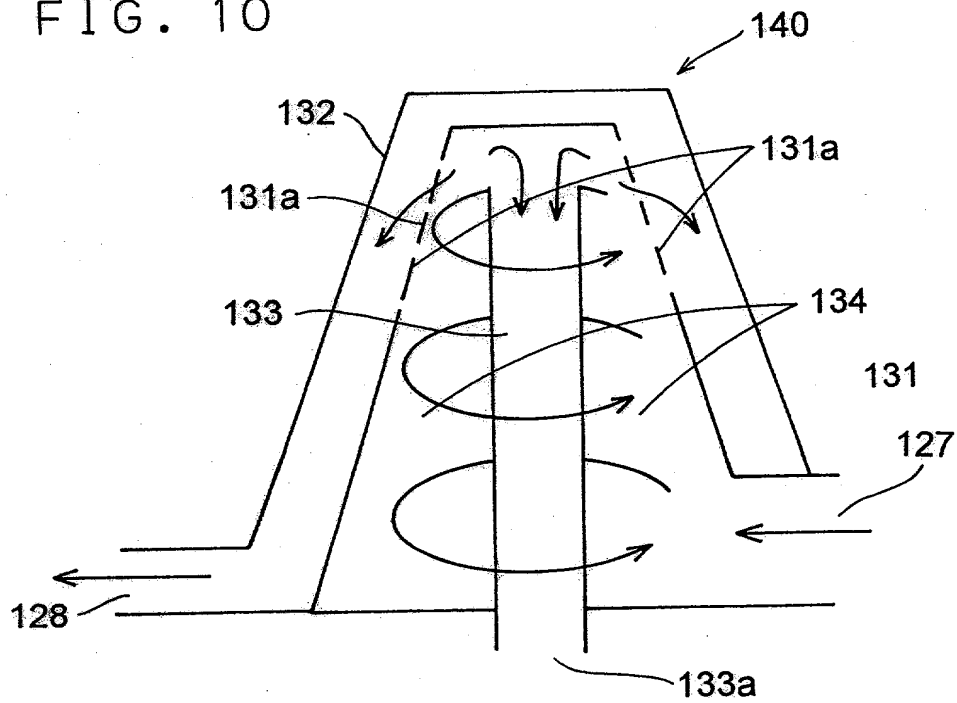
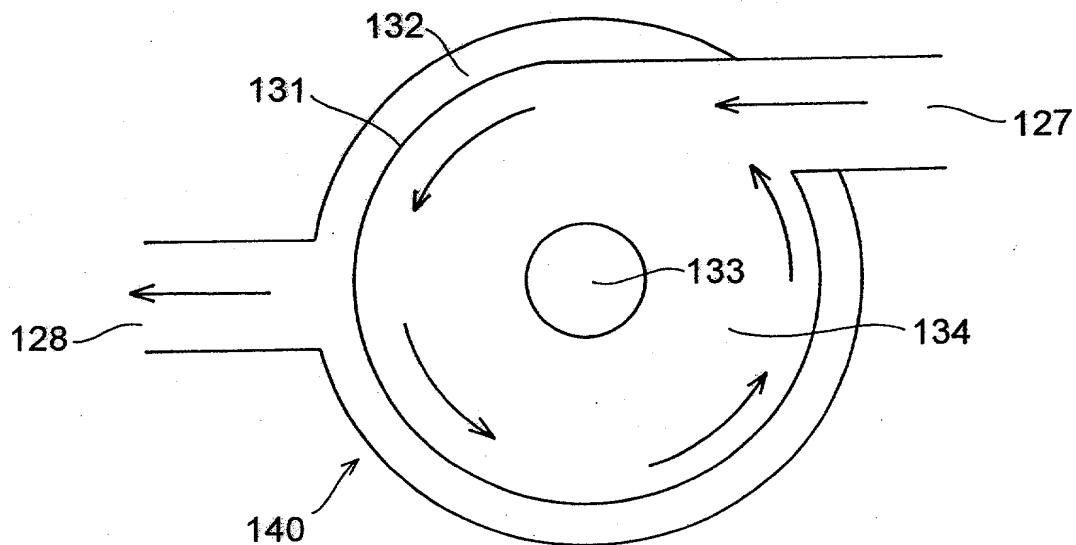
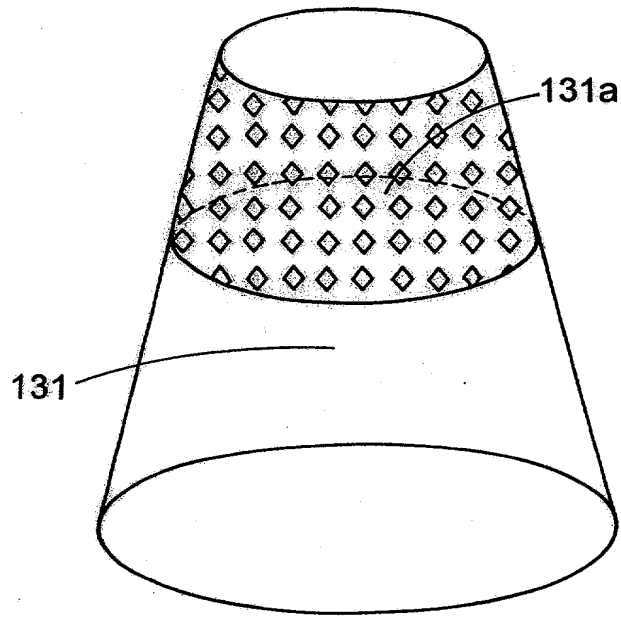


FIG. 11



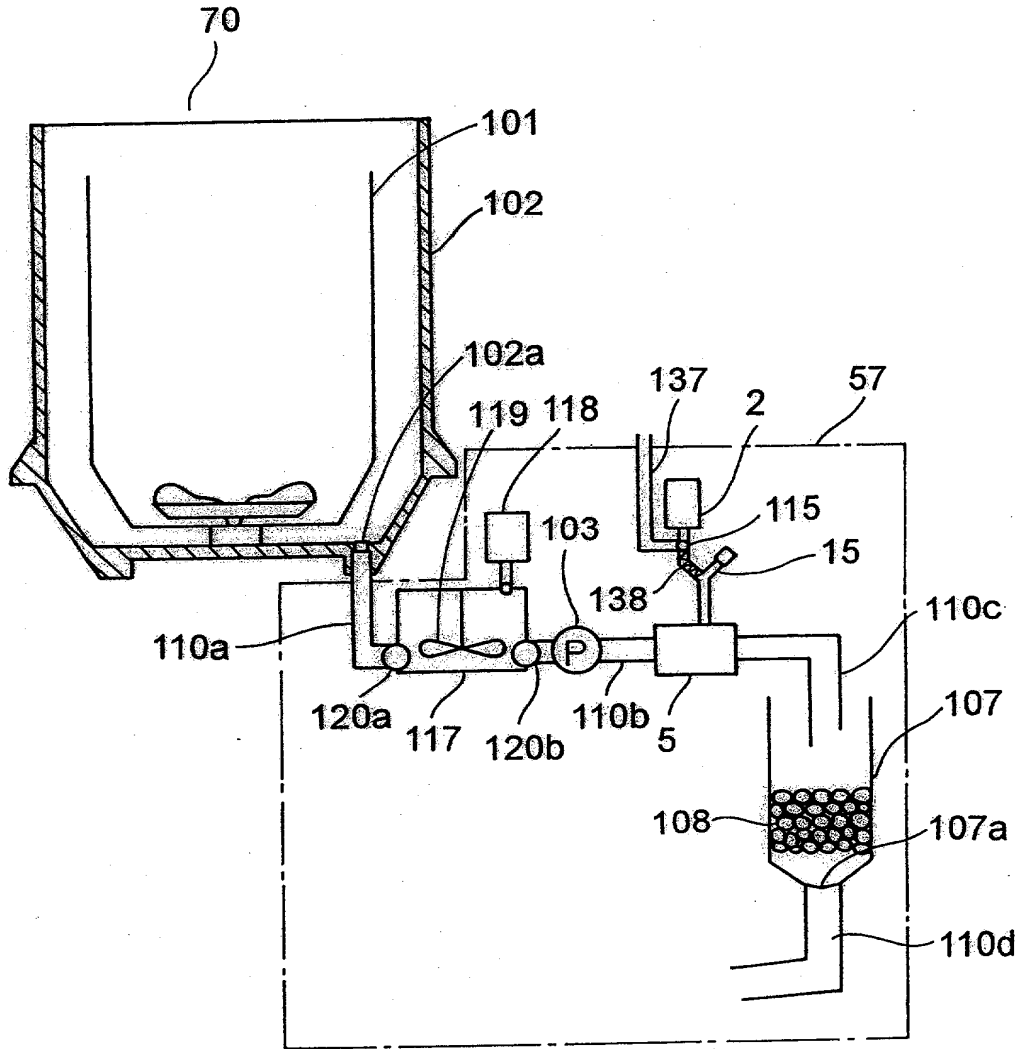
11/31

FIG.12



12/31

FIG. 13



209170" 4801E001

FIG. 14

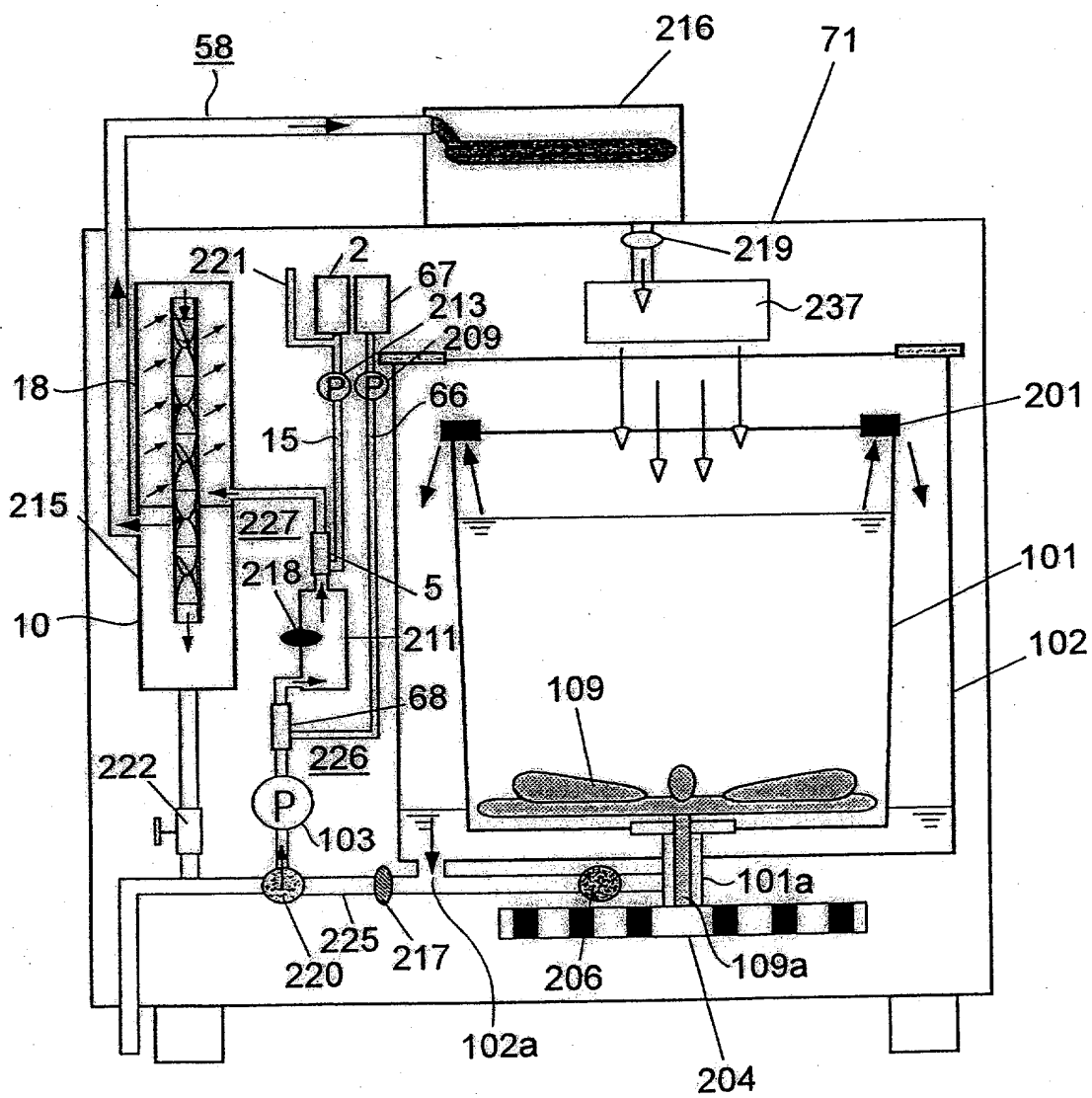


FIG. 15

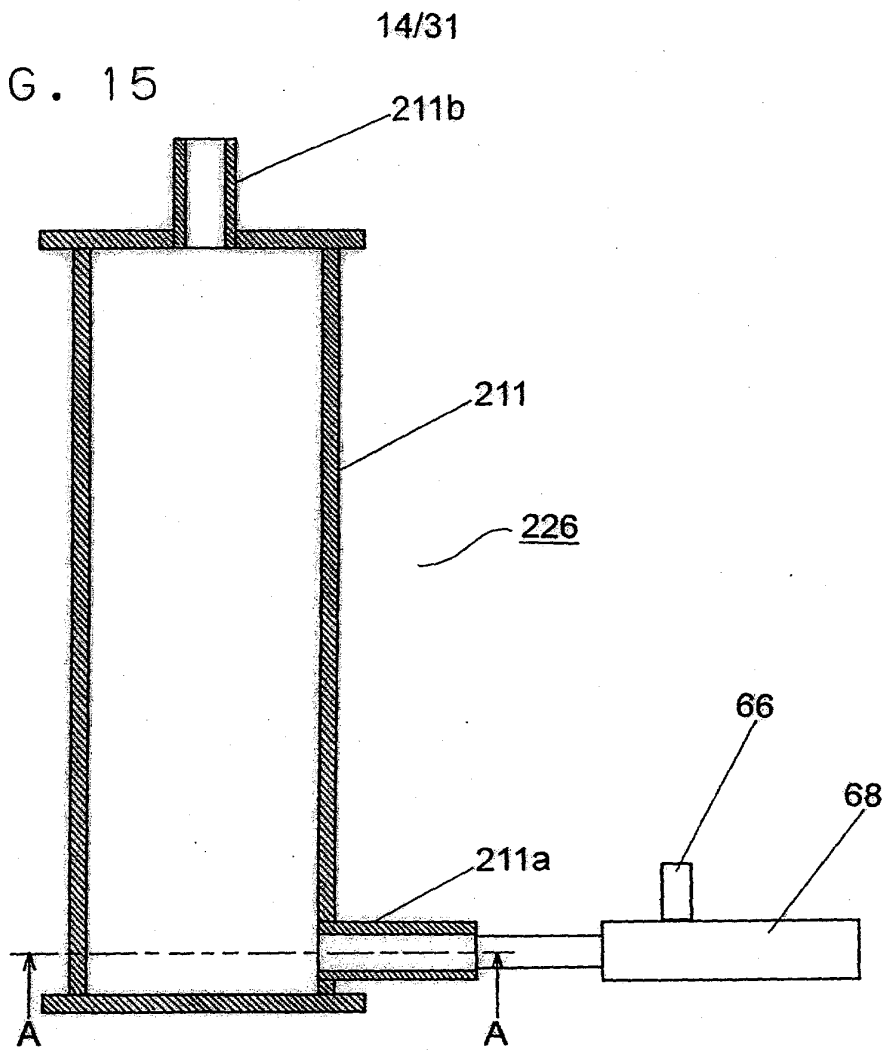
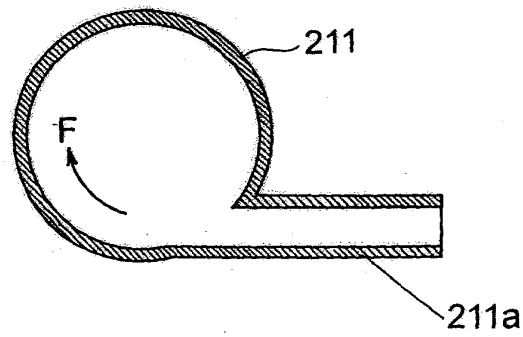
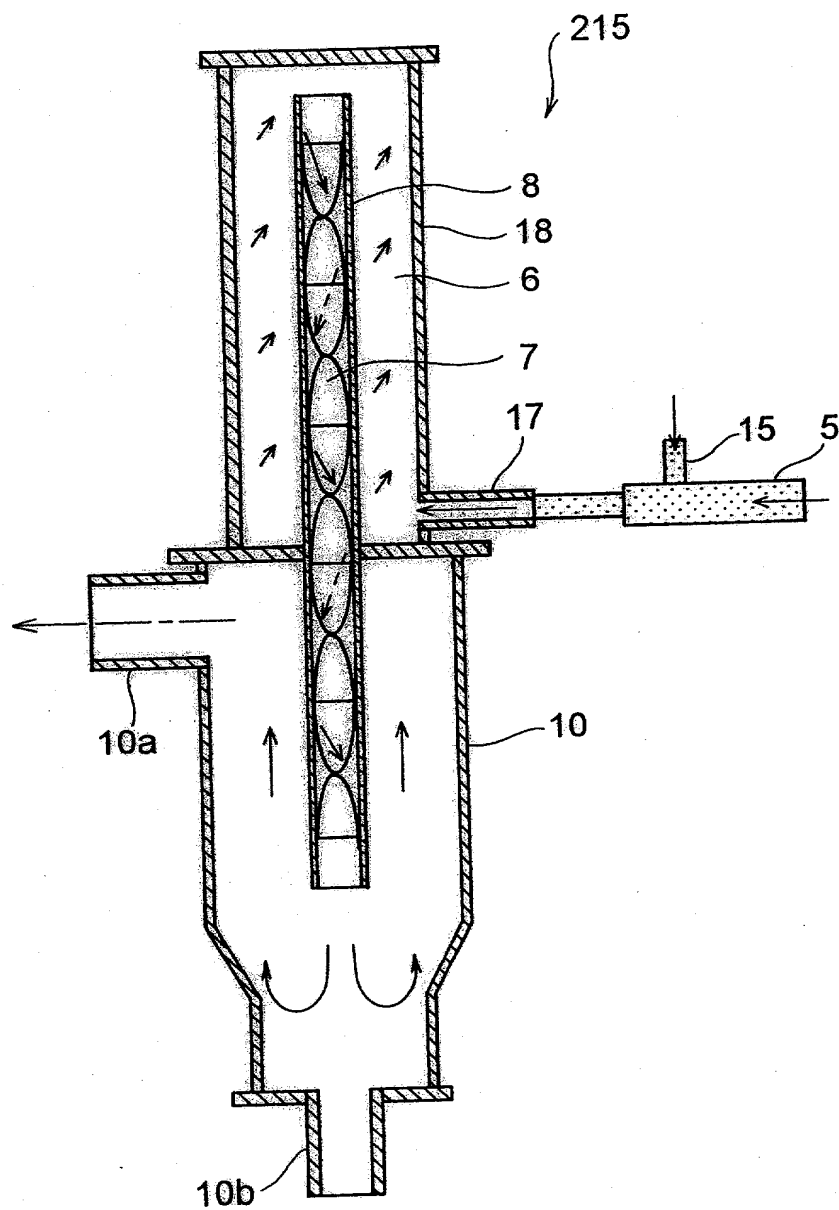


FIG. 16



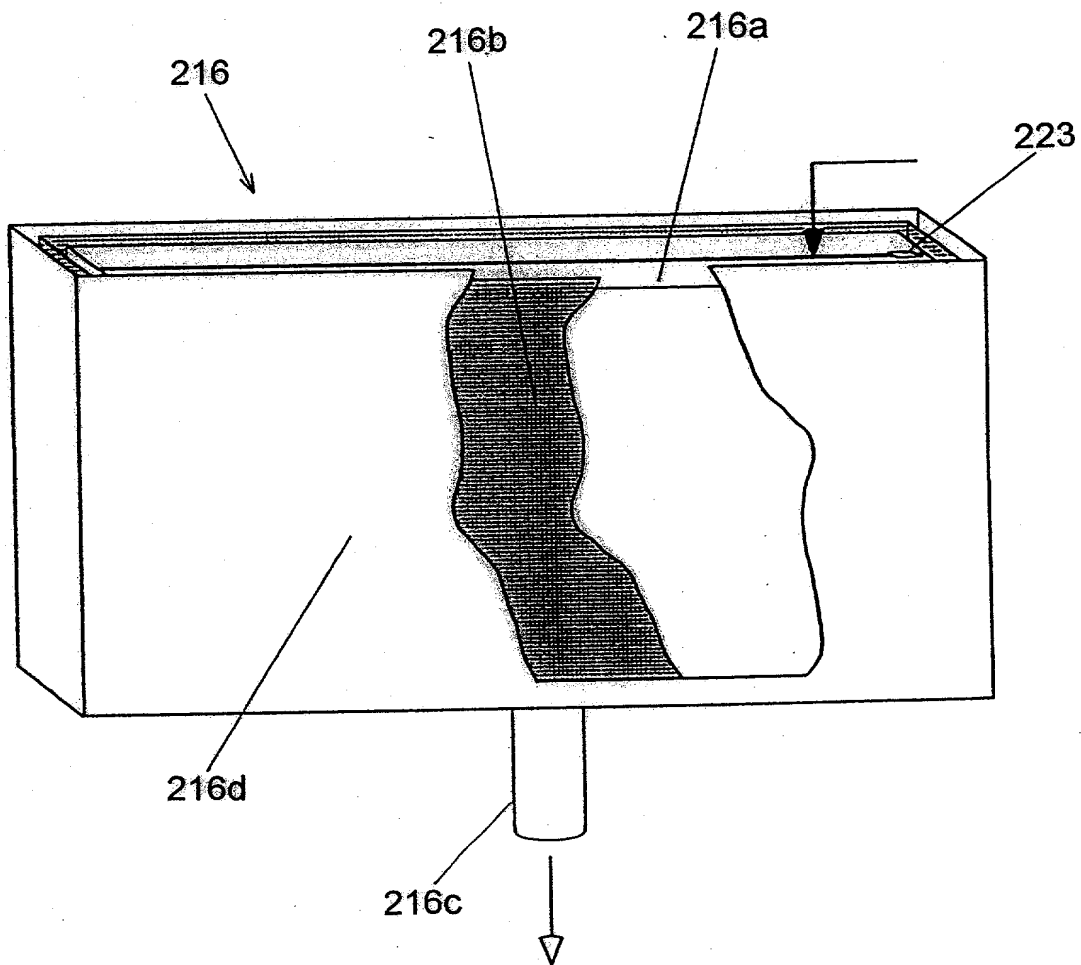
15/31

FIG. 17



16/31

FIG. 18





17/31

FIG. 19

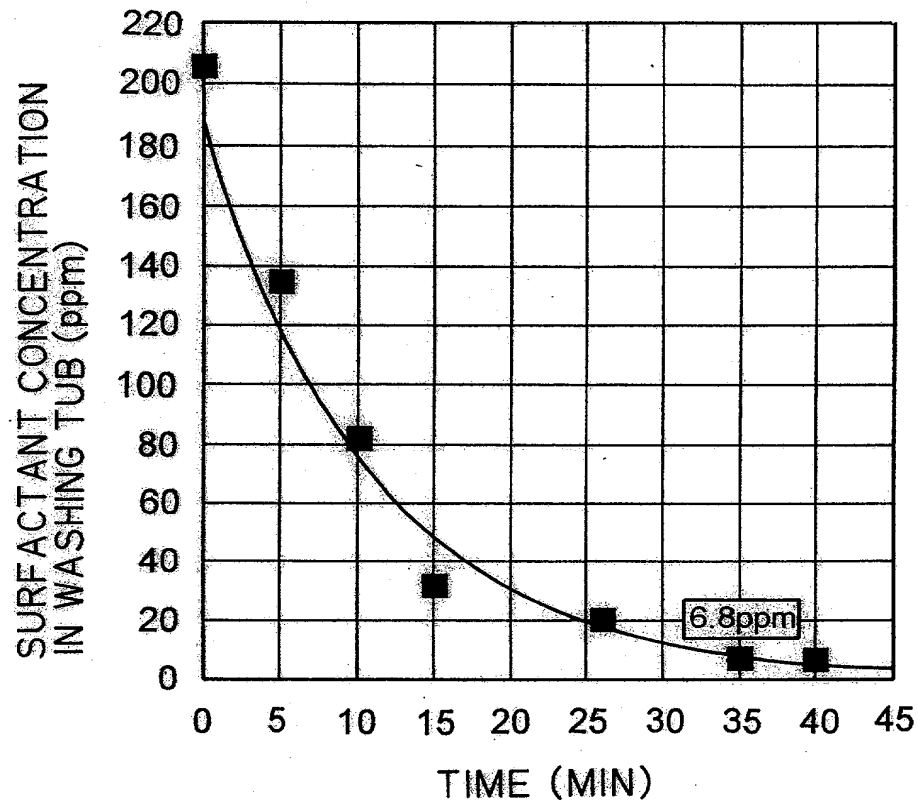
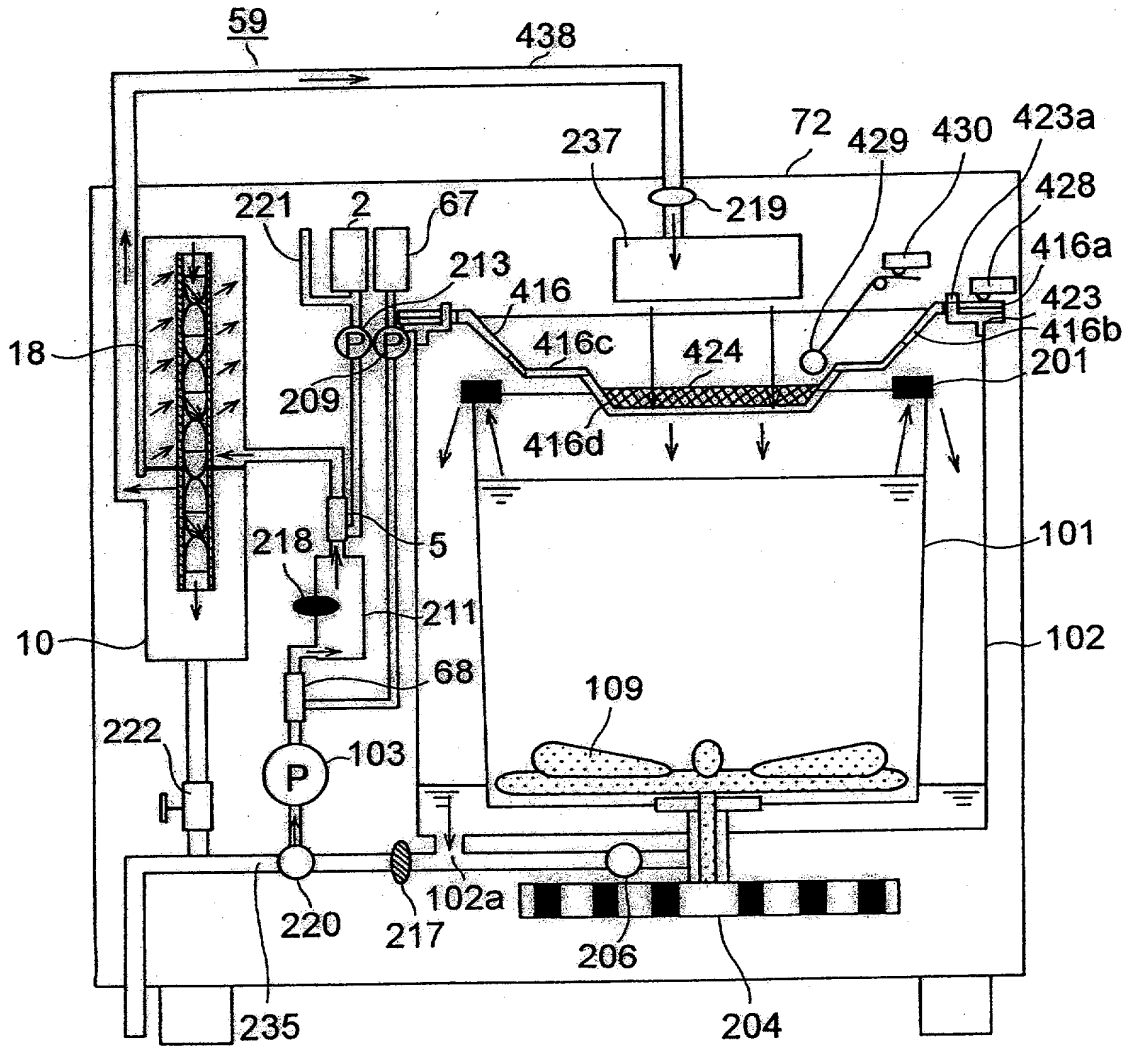
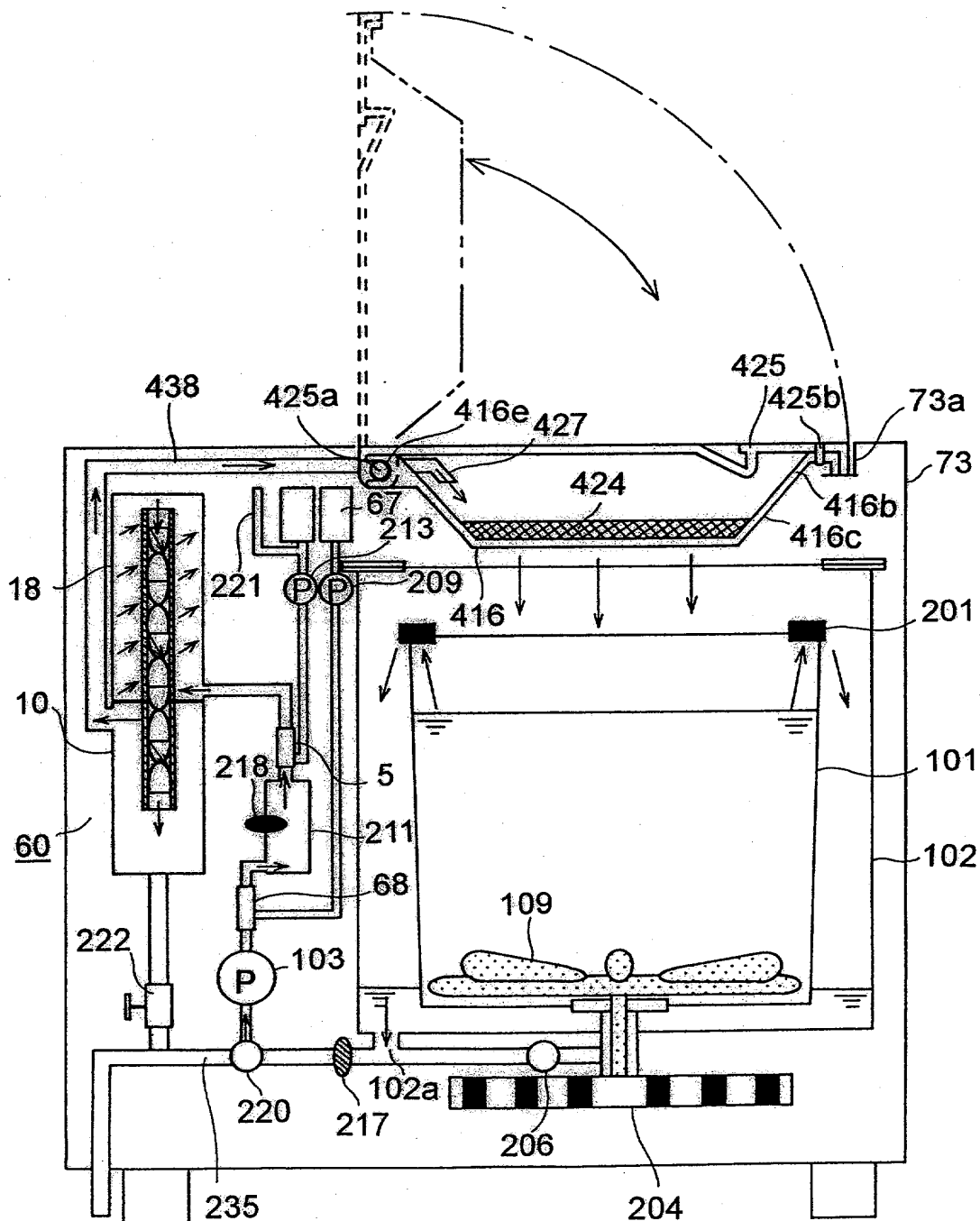


FIG. 20



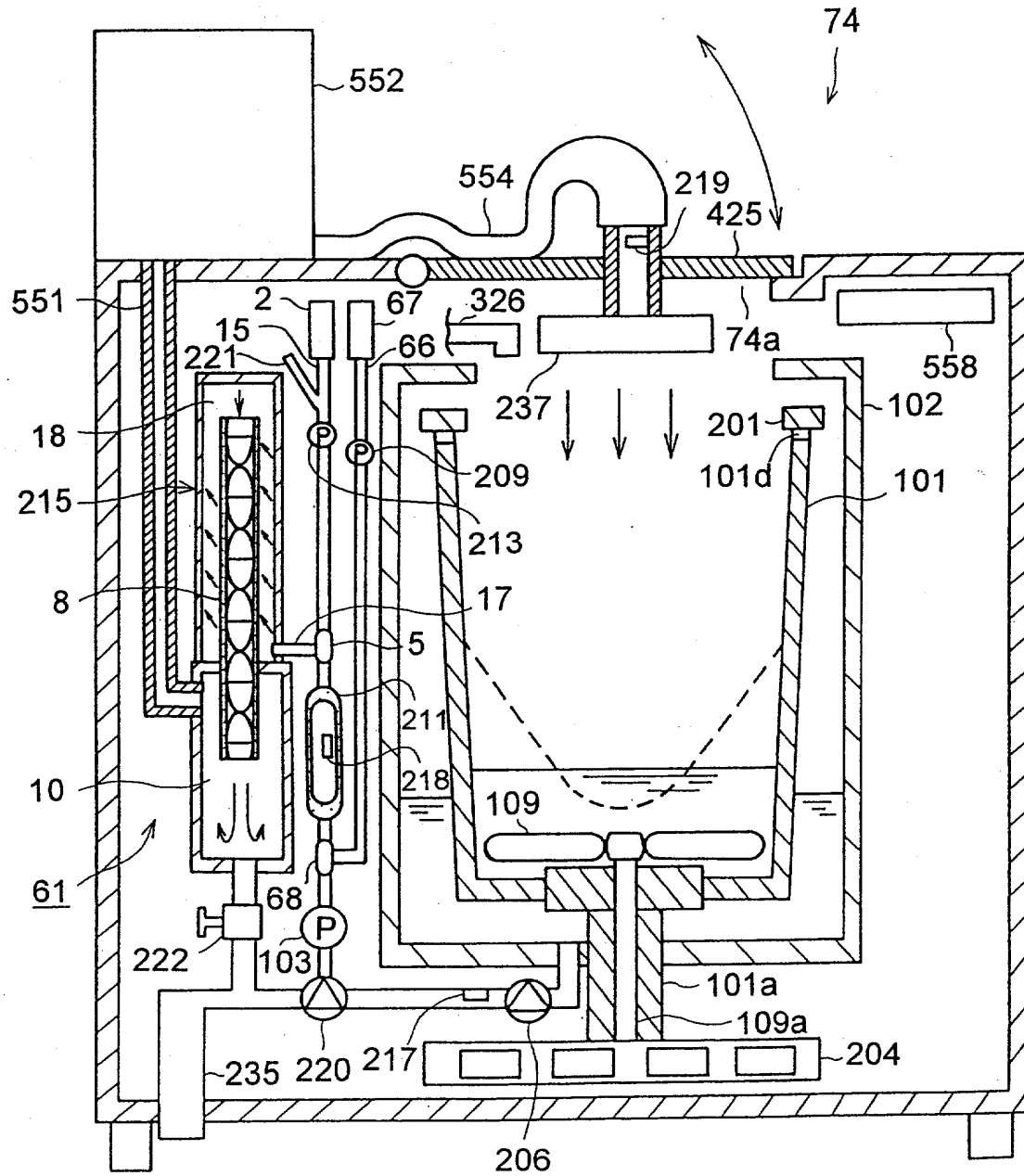
19/31

FIG. 21



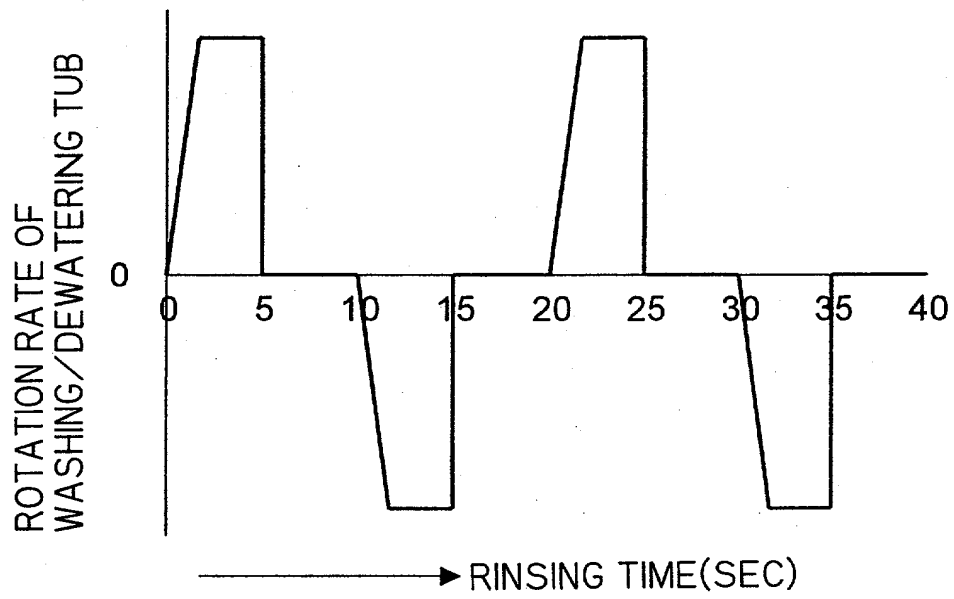
20/31

FIG. 22



21/31

FIG. 23



22/31

FIG. 24

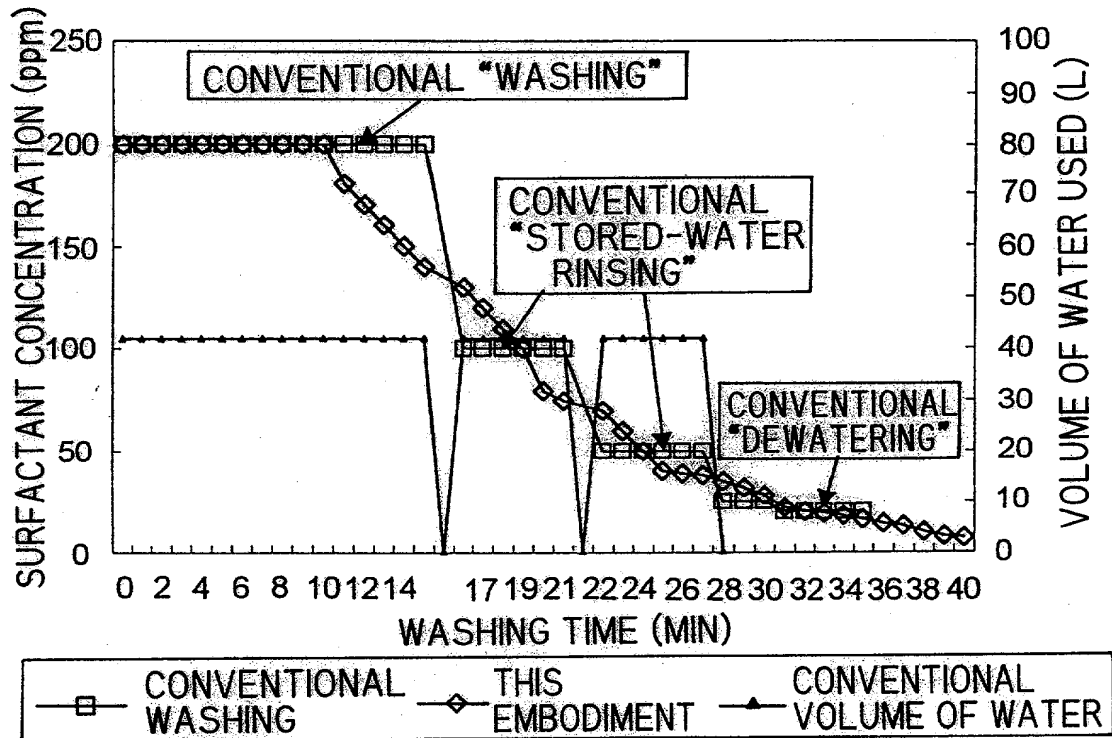


FIG. 25

	SURFACTANT CONCENTRATION IN WATER DISCHARGED IN FINAL DEWATERING(ppm)	TURBIDITY (NTU)
CONVENTIONAL RINSING	35	10.2
PURIFIED-WATER RINSING	20	1.5

23/31

FIG. 26

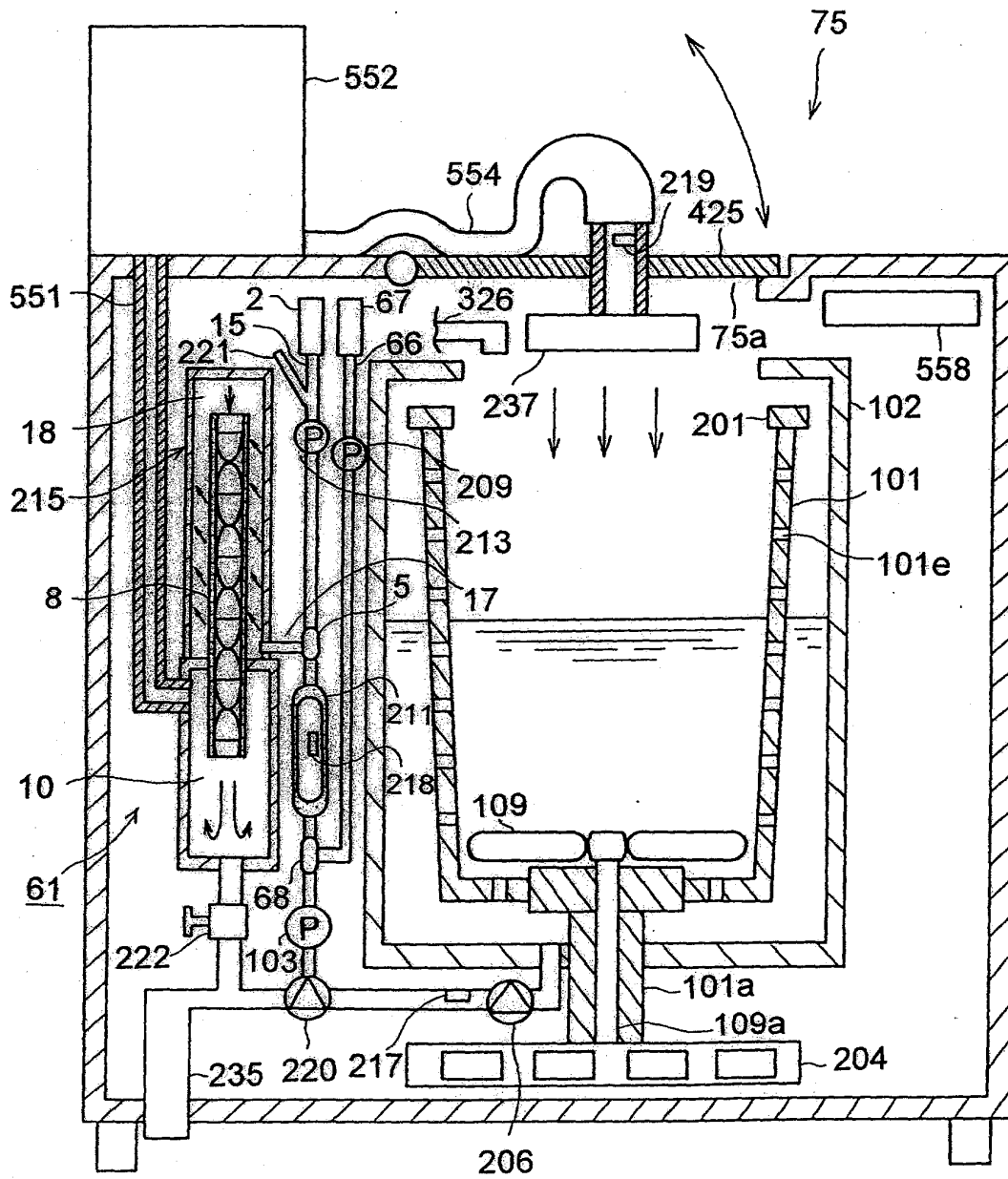
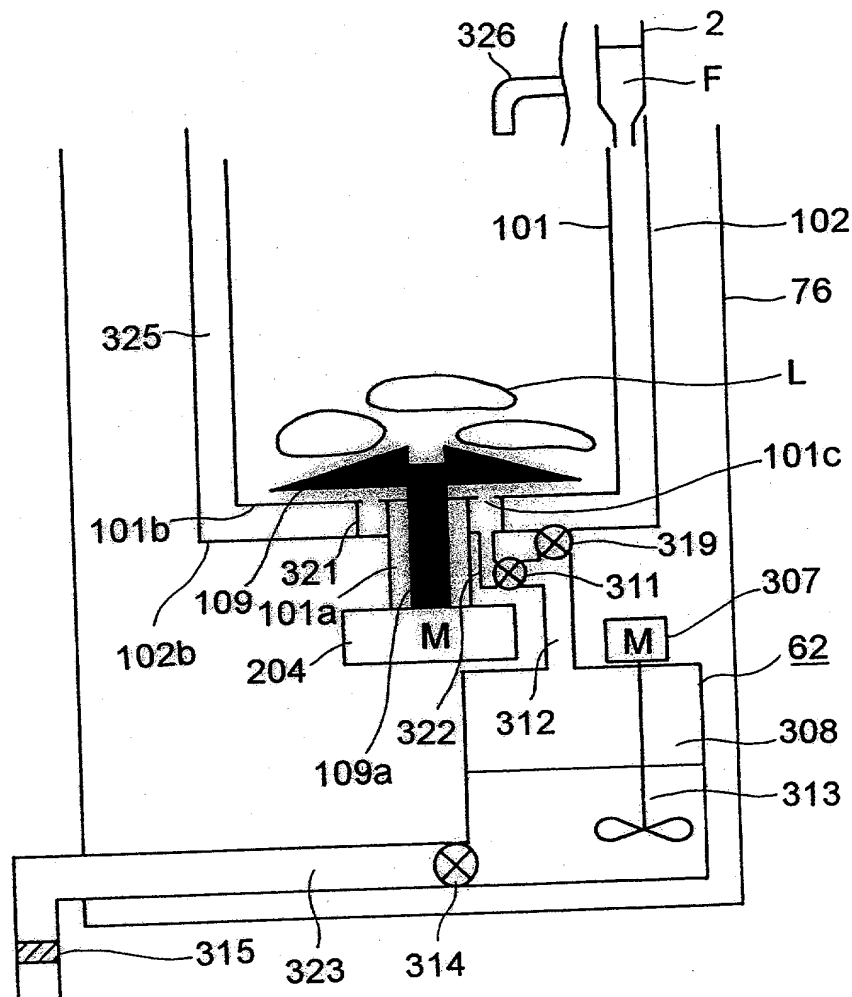


FIG. 27

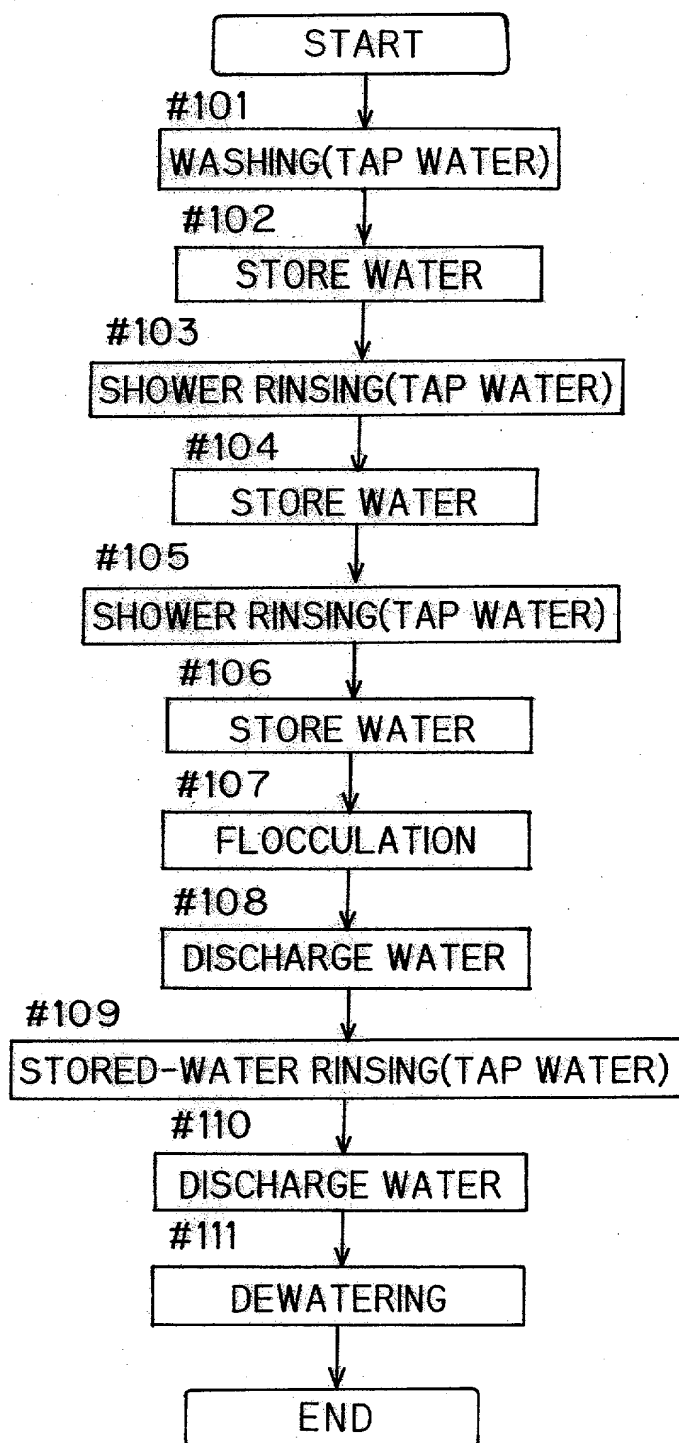


10031084 011502



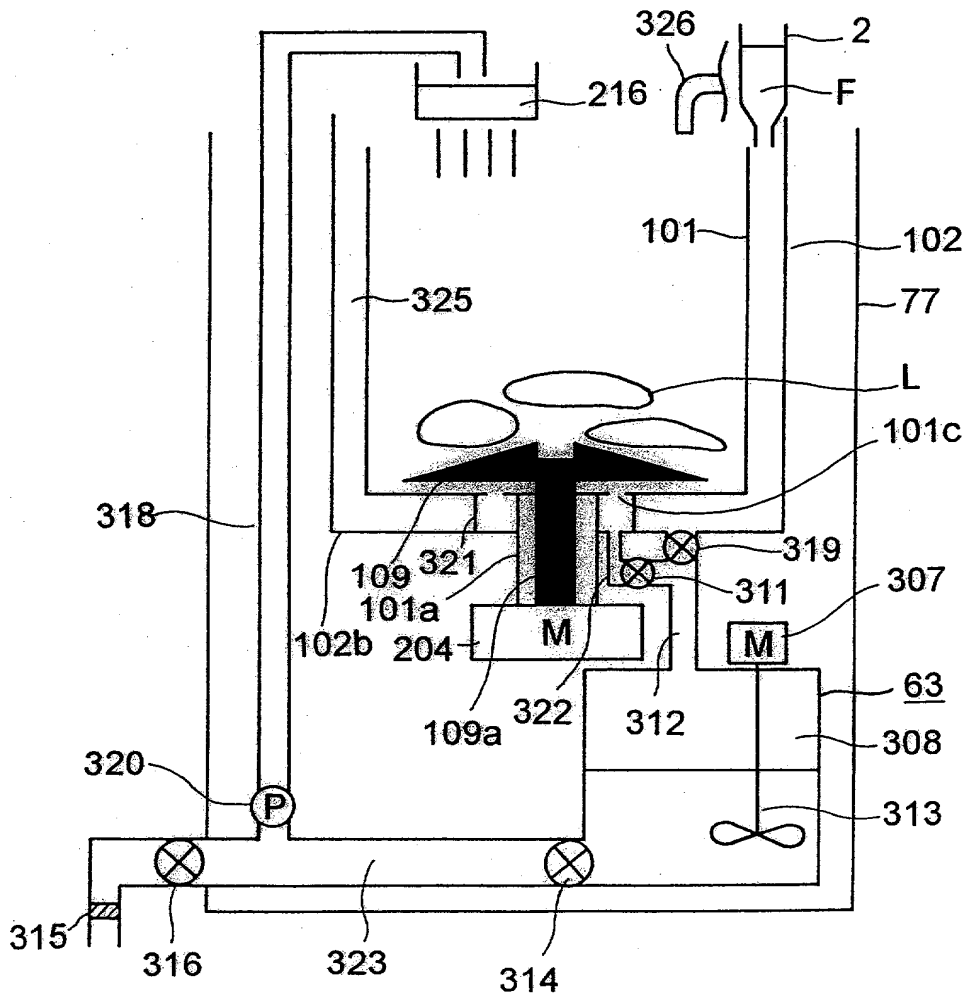
25/31

FIG. 28



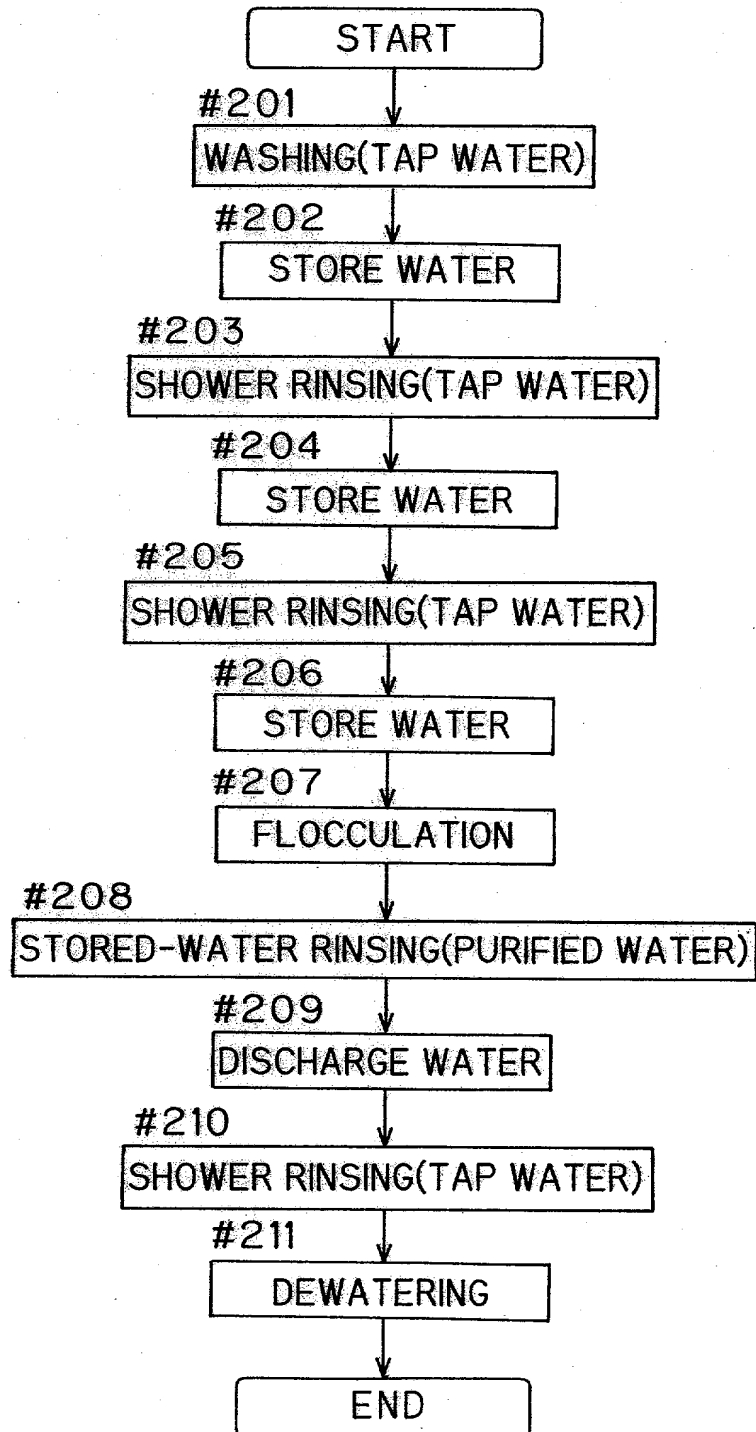
209TFO" 480TFOOT

FIG. 29



27/31

FIG. 30



28/31

FIG. 31

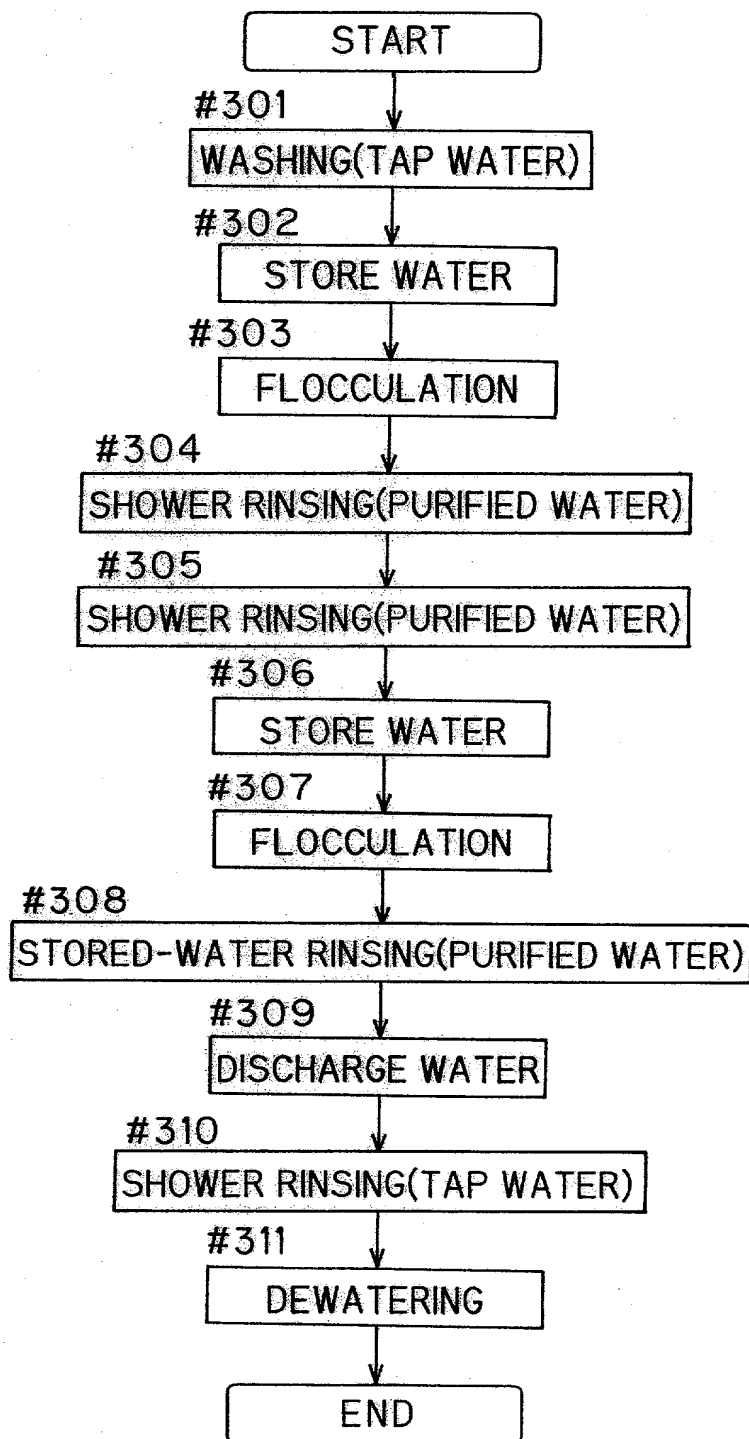
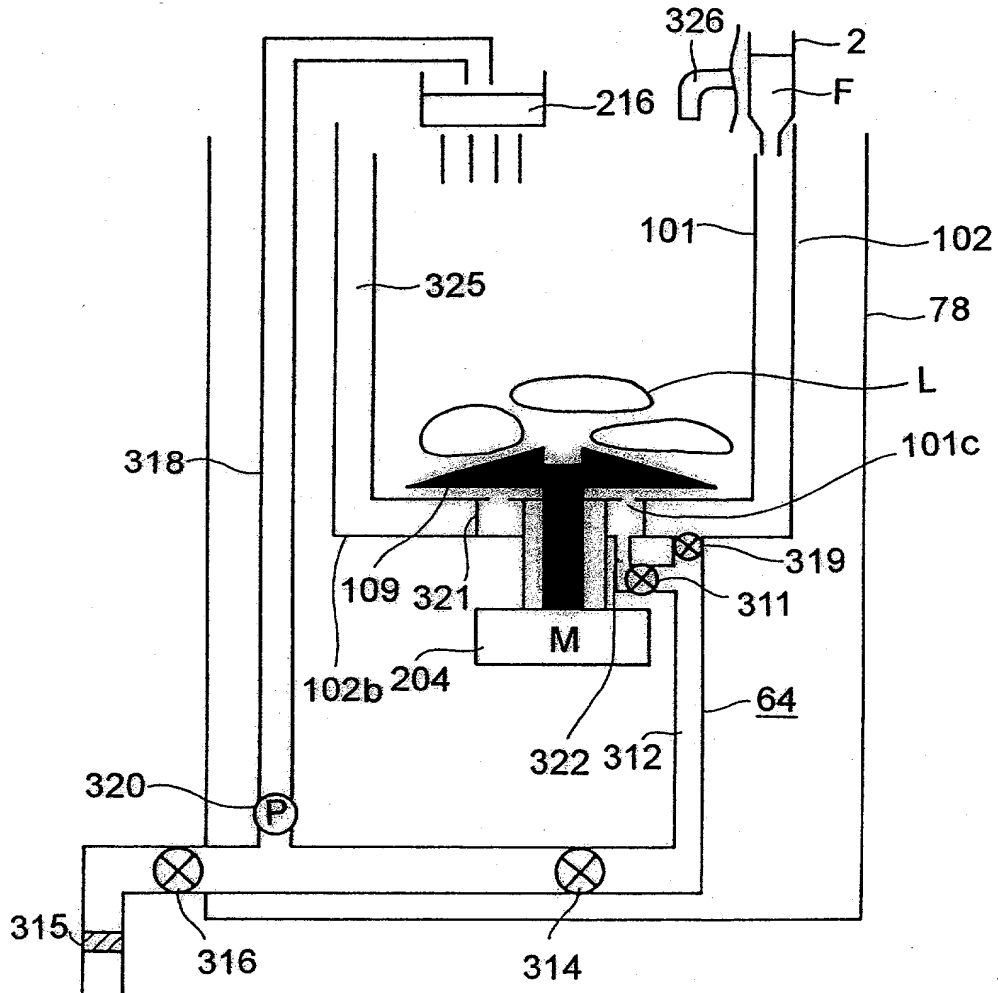


FIG. 32



30/31

FIG. 33

FLOCCULANT WATER SOLUTION	FLOCCULANT	BASICITY	CONCENTRATION (ON AN $\text{Al}_2\text{O}_3$ BASIS)
TAKIBINE#1500	PAC	83	23.2%
TAKIBINE#100	$\text{AlCl}_3$	0	11.5%

FIG. 34

	FLOCCULANT WATER SOLUTION	PAC: $\text{AlCl}_3$ (RATIO BY WEIGHT ON AN $\text{Al}_2\text{O}_3$ BASIS)	AMOUNT NEEDED (ON AN $\text{Al}_2\text{O}_3$ BASIS)	COLD WATER
COMPARATIVE EXAMPLE 1	RE-1	1 : 0	230mg/L	○
PRACTICAL EXAMPLE 1	SA-1	6 : 1	216mg/L	○
PRACTICAL EXAMPLE 2	SA-2	2 : 1	202mg/L	○
PRACTICAL EXAMPLE 3	SA-3	2 : 3	90mg/L	○
COMPARATIVE EXAMPLE 2	RE-2	0 : 1	60mg/L	×

31/31

FIG. 35

PAC ADDED (mL/L)	HCl ADDED (mL/L)	WASTEWATER pH	SURFACTANT REMOVAL RATE (%)
1.75	0	5.5	96.0
1.75	0.25	4.3	97.6
1.75	0.5	3.6	97.9